

COPY

PTO/SB/08 (2-92)

Sheet 1 of 4

Form PTO-1449	Docket Number 529552000100 (formerly 256602000500)	Application Number 09/904,779
INFORMATION DISCLOSURE CITATION PRIORITY APPLICATION (Use several sheets if necessary) JUN 14 2002 PATENT & TRADEMARK OFFICE	Applicant Venkatraman RAMAKRISHNAN et al.	
	Filing Date July 13, 2001	Group Art Unit 444
	Mailing Date June 10, 2002	

U.S. PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Name	Class	Subclass	Filing Date If Appropriate

FOREIGN PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Country	Class	Subclass	Translation YES NO

OTHER DOCUMENTS

(including author, title, Date, Pertinent Pages, Etc.)


Examiner Initials	Ref. No.	Title
col	1.	Bhuyan, B. K. et al. (1961). "Pactamycin, A New Antitumor Antibiotic: Discovery and Biological Properties," <i>Antimicrob Agents Chemother</i> 184-190.
col	2.	Böck, A. et al. (1979). "Ribosomal Ambiguity (Ram) Mutations Facilitate Dihydrostreptomycin Binding to Ribosomes," <i>FEBS Letters</i> 104(2):317-321.
	3.	Brink, M. F. et al. (1994). "Spectinomycin Interacts Specifically with the Residues G1064 and C1192 in 16S rRNA, Thereby Potentially Freezing This Molecule Into an Inactive Conformation," <i>Nucleic Acids Res</i> 22(3):325-331.
	4.	Brodersen et al. "the Structural Basis for the Action of the Antibiotics Tetracycline, Pactamycin and Hygromycin B on the 30S Ribosomal Subunit," <i>Cell</i> 103:1143-1154. (2000)
	5.	Brown, C. M. et al. (1993). "Two Regions of the Escherichia Coli 16S Ribosomal RNA Are Important for Decoding Stop Signals in Polypeptide Chain Termination," <i>Nucleic Acids Res</i> 21(9):2109-2115.
	6.	Cabanas, M. J. et al. (1978). "Inhibition of Ribosomal Translocation by Aminoglycoside Antibiotics," <i>Biochem Biophys Res Commun</i> 83(3):991-997.
	7.	Carter et al. (2000). "Functional Insights from the Structure of the 30S Ribosomal Subunit and its Interactions with Antibiotics," <i>Nature</i> 407:340-348.
	8.	Chopra, I. et al. (1992). "Tetracyclines, Molecular and Clinical Aspects," <i>J. Antimicrob Chemother</i> 29:245-277.
	9.	Clemons, Jr., W. et al. (1999). "Structure of a Bacterial 30S Ribosomal Subunit at 5.5 Å Resolution," <i>Nature</i> 400:833-840.

EXAMINER:

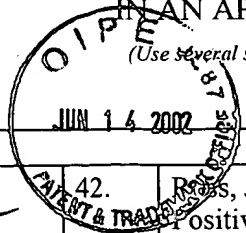
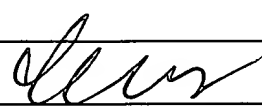
DATE CONSIDERED:

4/24/03

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

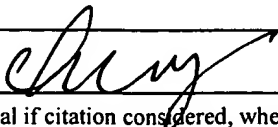
Form PTO-1449		Docket Number 529552000100 (formerly 256602000500)	Application Number 09/904,779
INFORMATION DISCLOSURE CITATION IN AN APPLICATION (Use several sheets if necessary)		Applicant Venkatraman RAMAKRISHNAN et al.	
		Filing Date July 13, 2001	Group Art Unit 444 631
		Mailing Date June 10, 2002	
JUN 14 2002			
10.	Clemens, Jr., W. et al. (2001). "Crystal Structure of the 30S Ribosomal Subunit from <i>Thermus thermophilus</i> : Purification, Crystallization and Structure Determination," <i>J. Mol. Biol.</i> 310:827-843.		
11.	Cohen, L. B. et al. (1969). "Inhibition by Pactamycin of the Initiation of Protein Synthesis. Effect on the 30S Ribosomal Subunit," <i>Biochemistry</i> 8(4):1327-1335.		
12.	De la Fortelle, E. and Bricogne, G. (1997). "Maximum-Likelihood Heavy-Atom Parameter Refinement for Multiple Isomorphous Replacement and Multiwavelength Anomalous Diffraction Methods," In <i>Methods in Enzymology</i> , eds. Carter, C. W., Jr. Sweet, R. M, Academic Press, New York, 1997, pp. 472-493.		
13.	Donner, D. and Kurland, C. G. (1972). "Changes in the Primary Structure of a Mutationally Altered Ribosomal Protein S4 of <i>Escherichia Coli</i> ," <i>Mol Gen Genet</i> 115:49-53.		
14.	Egebjerg, J. and Garrett, R. A. (1991). "Binding Sites of the Antibiotics Pactamycin and Celesticetin on Ribosomal RNAs," <i>Biochimie</i> 73:1145-1149.		
15.	Eustice, D. C and Wilhelm, J. M. (1984). "Mechanisms of Action of Aminoglycoside Antibiotics in Eucaryotic Protein Synthesis," <i>Antimicrob Agents Chemother</i> 26(1):53-60.		
16.	Eustice, D. C. and Wilhelm, J. M. (1984). "Fidelity of the Eukaryotic Codon-Anticodon Interaction: Interference by Aminoglycoside Antibiotics," <i>Biochemistry</i> 23:1462-1467.		
17.	Fourmy, D. et al. (1996). "Structure of the A Site of <i>Escherichia Coli</i> 16S Ribosomal RNA Complexed with an Aminoglycoside Antibiotic," <i>Science</i> 274:1367-1371.		
18.	Funatsu, G. and Wittmann, H. G. (1972). "Location of Amino-Acid Replacements in Protein S12 Isolated from <i>Escherichia Coli</i> Mutants Resistant to Streptomycin," <i>J. Mol Biol</i> 68:547-550.		
19.	Funatsu, G. et al. (1972). "Ribosomal Proteins. XXXI. Comparative Studies on Altered Proteins S4 of <i>Sic Escherichia Coli</i> Revertants from Streptomycin Dependence," <i>Mol Gen Genet</i> 115:131-139.		
20.	Geigenmüller, U. and Nierhaus, K. H. (1986). "Tetracycline Can Inhibit tRNA Binding to the Ribosomal P Site as Well as to the A Site," <i>Eur J. Biochem</i> 161:723-726.		
21.	Gonzales, A. et al. (1978). "Studies on The Mode of Action of Hygromycin B, An Inhibitor of Translocation in Eukaryotes," <i>Biochim Biophys Acta</i> 521:459-469.		
22.	Gravel, M. et al. (1987). "Cross-Linking of Streptomycin to the 16S Ribosomal RNA of <i>Escherichia Coli</i> ," <i>Biochemistry</i> 26:6227-6232.		
23.	Hope, H. et al. (1989). "Cryocrystallography of Ribosomal Particles," <i>Acta Cryst.</i> B45:190-199.		
24.	Ito, T. and Wittmann, H. G. (1973). "Amino Acid Replacements in Proteins S5 and S12 of Two <i>Escherichia Coli</i> Revertants from Streptomycin Dependence to Independence," <i>Mol. Gen. Genet</i> , 127:19-32.		
25.	Kolesnikov, I. V. et al. (1996). "Tetrycyclines Induce Changes in Accessibility of Ribosomal Proteins to Proteases," <i>Biochimie</i> 78:868-873		
EXAMINER: 		DATE CONSIDERED: 4/24/03	
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.			

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Form PTO-1449		Docket Number 529552000100 (formerly 256602000500)	Application Number 09/904,779
INFORMATION DISCLOSURE CITATION IN AN APPLICATION (Use several sheets if necessary) 		Applicant Venkatraman RAMAKRISHNAN et al.	
		Filing Date July 13, 2001	Group Art Unit 1744
		Mailing Date June 10, 2002	
42.	Ross, J. I. et al. (1998). "16S rRNA Mutation Associated with Tetracycline Resistance in a Gram-Positive Bacterium," <i>Antimicrob Agent Chemother</i> 42(7):1702-1705.		
43.	Schluenzen et al. (2000). "Structure of Functionally Activated Small ribosomal Subunit at 3.3Å Resolution," <i>Cell</i> 102:615-623.		
44.	Spahn, C. M. and Prescott, C. D. (1996). "Throwing a Spanner in the Works: Antibiotics and the Translation Apparatus," <i>J. Mol Med</i> 74:423-439.		
45.	Spangler, E. A. and Blackburn, E. H. (1985). "The Nucleotide Sequence of the 17S Ribosomal RNA Gene of Tetrahymena Thermophila and the Identification of Point Mutations Resulting in Resistance to the Antibiotics Paromomycin and Hygromycin," <i>J. Biol. Chem.</i> 260(10):6334-6340.		
46.	Tejedor, R. et al. (1985). "Photoaffinity Labeling of the Pactamycin Binding Site on Eubacterial Ribosomes," <i>Biochemistry</i> 24:3667-3672.		
47.	Timms, A. R. et al. (1992). "Mutant Sequences in the rpsL Gene of Escherichia Coli B/r: Mechanistic Implications for Spontaneous and Ultraviolet Light Mutagenesis," <i>Mol Gen Genet</i> 232:89-96		
48.	Timms, A. R. and Bridges, B.A. (1993). "Double, Independent Mutational Events in the rpsL Gene of Escherichia Coli: and Example of Hypermutability," <i>Mol. Microbiol.</i> 9(2):335-342.		
49.	Tubulekas, I. et al. (1991). "Mutant Ribosomes Can Generate Dominant Kirromycin Resistance," <i>J. Bacteriol.</i> 173(12):3635-3643.		
50.	VanLoock, M. S. et al. "Major Groove Binding of the tRNA/mRNA Complex to the 16S Ribosomal RNA Decoding Site," <i>J. Mol. Biol.</i> 285:2069-2078.		
51.	Woodcock, J. et al. (1991). "Interaction of Antibiotics with A- and P-Site-Specific Bases in 16S Ribosomal RNA," <i>EMBO J.</i> 10:3099-3103.		
52.	Yoshizawa, S. et al. (1999). "Recognition of the Codon-Anticodon Helix by Ribosomal RNA," <i>Science</i> 285:1722-1725.		
53.	Zierhut, G. et al. (1979). "Comparative Analysis of the Effect of Aminoglycosides on Bacterial Protein Synthesis <i>In Vitro</i> ," <i>Eur. J. Biochem.</i> 98:577-583.		
RECEIVED SEP 24 2002 TECH CENTER 1600/2900			
EXAMINER: 		DATE CONSIDERED: 9/24/02	
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.			

Form PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION <i>(Use several sheets if necessary)</i>	Docket Number 256602000500	Application Number 09/904,779
	Applicant Venkatraman RAMAKRISHNAN et al.	
	Filing Date July 13, 2001	Group Art Unit 1234 1631
	Mailing Date January 30, 2002	

CM	41.	Walter, W. P. et al. (1998). "Virtual Screening - An Overview," <i>Drug Delivery Today</i> 3(4):160-178.
	42.	Wimberly, B. T. (2000). "Structure of the 30S Ribosomal Subunit," <i>Nature</i> 407:327-339.
	43.	Wittmann-Liebold, B. and Greuer, B. (1978). "The Primary Structure of Protein S5 from the Small Subunit of the Escherichia Coli Ribosome," <i>FEBS Letters</i> 95(1):91-98.
	44.	Wu, H. et al. (1993). "The Binding Site for Ribosomal Protein S8 in 16S rRNA and spc mRNA from Escherichia Coli: Minimum Structural Requirements and the Effects of Single Bulged Bases on S8-RNA Interaction," <i>Nucleic Acids Res.</i> 22:1687-1695.
	45.	Yonath, A. et al. (1998). "Crystallographic Studies on the Ribosome, A Large Macromolecular Assembly Exhibiting Severe Nonisomorphism, Extreme Beam Sensitivity and No Internal Symmetry," <i>Acta Cryst.</i> A54: 945-955.
	46.	Yonath, A. et al. "Characterization of Crystals of Small Ribosomal Subunits," <i>J. Mol. Biol.</i> 203:831-834. (1988)
	47.	Yusupov, M. M. et al. (1988). "A New Crystalline Form of 30S Ribosomal Subunits from Thermus Thermophilus," <i>FEBS Letters</i> 238:113-115.

EXAMINER: 	DATE CONSIDERED: 4/29/03
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.	

Form PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION <i>(Use several sheets if necessary)</i>	Docket Number 256602000500	Application Number 09/904,779
	Applicant Venkatraman RAMAKRISHNAN et al.	
	Filing Date July 13, 2001	Group Art Unit 4744 1631
	Mailing Date January 30, 2002	

U.S. PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Name	Class	Subclass	Filing Date If Appropriate

FOREIGN PATENT DOCUMENTS

Examiner Initials	Ref. No.	Date	Document No.	Country	Class	Subclass	Translation YES NO

OTHER DOCUMENTS

(including author, title, Date, Pertinent Pages, Etc.)

Examiner Initials	Ref. No.	Title
car	1.	Abrahams, J. P. (1997). "Bias Reduction in Phase Refinement by Modified Interference Functions: Introducing the Gamma Correction," <i>Acta Cryst</i> D53:371-376.
	2.	Agalarov, S. C. et al. (2000). "Structure of the S15, S6, S18-rRNA Complex: Assembly of the 30S Ribosome Central Domain," <i>Science</i> 288:107-112.
	3.	Allard, P. et al. (2000). "Another Piece of the Ribosome: Solution Structure of S16 and Its Location in the 30S Subunit," <i>Structure</i> 8(8): 875-882.
	4.	Blundell, T. L. et al. (1976). <u>Protein Crystallography</u> . Academic Press: New York, NY., and Johnson, L. N., eds. pp. ix-xiv (Table of Contents Only).
	5.	Brünger, A. T. et al. (1998). "Crystallography and NMR System: A New Software Suite for Macromolecular Structure Determination," <i>Acta Cryst.</i> D54:905-921.
	6.	Cate, J. H. et al. (1999). "X-Ray Crystal Structures of 70S Ribosome Functional Complexes," <i>Science</i> 285:2095-2104.
	7.	Clemons, Jr. W. M. et al. (1999). "Structure of a Bacterial 30S Ribosomal Subunit at 5.5 Å Resolution," <i>Nature</i> 400:833-840.
	8.	Collaborative Computational Project 4 (1994). "The CCP4 Suite: Programs for Protein Crystallography," <i>Acta Cryst.</i> D50:760-763.
	9.	Cowtan, K. and Main, P. (1998). "Miscellaneous Algorithms for Density Modification", <i>Acta Crystallogr D. Biol. Crystallogr</i> 54:487-493.

EXAMINER:

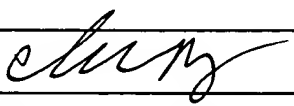
DATE CONSIDERED:

4/29/02

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

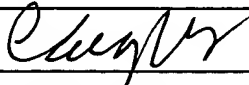
Form PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION <i>(Use several sheets if necessary)</i>	Docket Number 256602000500	Application Number 09/904,779
	Applicant Venkatraman RAMAKRISHNAN et al.	
	Filing Date July 13, 2001	Group Art Unit 4744 1631
	Mailing Date January 30, 2002	

cm	10.	Davies, C. et al. (1998). "The Crystal Structural of Ribosomal Protein S4 Reveals a Two-Domain Molecule with an Extensive RNA-Binding Surface: One Domain Shows Structural Homology to the ETS DNA-Binding Motif," <i>EMBO J.</i> 17:4545-4558.
	11.	Dunbrack, R. L. et al (1997). "Meeting Review: the Second Meeting on the Critical Assessment of Techniques for Protein Structure Prediction (CASP2), Asilomar, California, December 13-16, 1996," <i>Folding and Design</i> 2:R27-R42.
	12.	Gabashvili, I. S. et al. (1999). "Major Rearrangements in the 70S Ribosomal 3D Structure Caused by a Conformational Switch in 16S Ribosomal RNA," <i>EMBO J.</i> 18(22):6501-6507.
	13.	Garrett, R. A. et al., eds. (2000). <i>The Ribosome. Structure, Function, Antibiotics and Cellular Interactions</i> . ASM Press: Washington DC., pp. v-viii (Table of Contents Only).
	14.	Glötz, C. et al. (1987). "Three Dimensional Crystals of Ribosomes and Their Subunits from EU- and Archaeobacteria," <i>Biochem Int.</i> 15(5):953-960.
	15.	Golden, B. L. et al. (1993). "Ribosomal Protein S17 Characterization of the Three-Dimensional Structure by 1H- and 15N-NMR," <i>Biochemistry</i> 32:12812-12820.
	16.	Goodford, P. J. (1985). "A Computational Procedure for Determining Energetically Favorable Binding Sites on Biologically Important Macromolecules," <i>J. Med. Chem.</i> 28:849-857.
	17.	Greer, J. et al. (1994). "Application of the Three-Dimensional Structures of Protein Target Molecules in Structure-Based Drug Design," <i>J. of Medicinal Chemistry</i> 37:1035-1054.
	18.	Hartmann, R. K. and Erdmann, V. A. (1989). "Thermus Thermophilus 16S rRNA is Transcribed from an Isolated Transcription Unit," <i>J. Bacteriol.</i> 171(6):2933-2941.
	19.	Helgstrand, M. et al. (1999). "Solution Structure of the Ribosomal Protein S19 from Thermus Thermophilus," <i>J. Mol. Biol.</i> 292:1071-1081.
	20.	Hüttenhofer, A. and Noller, H. F. (1992). "Hydroxyl Radical Cleavage of tRNA in the Ribosomal P-Site," <i>Proc. Nat'l Acad. Sci. USA</i> 89:7851-7855.
	21.	Jack, A. et al. (1976). "Crystallographic Refinement of Yeast Phenylalanine Transfer RNA at 2-5Å Resolution," <i>J. Mol. Biol</i> 108:619-649.
	22.	Jones, T. A. et al. (1991). "Improved Methods for Building Protein Models in Electron Density Maps and the Location of Errors in These Models," <i>Acta. Cryst.</i> A47: 110-119.
	23.	Jones, T. A. & Kjeldgaard, M. (1997). "Electron-Density Map Interpretation," <i>Meth. Enzymol.</i> 277:173-207.
	24.	Lodmell, J. S. and Dahlberg, A. E. (1997). "A Conformational Switch in Escherichia Coli 16S Ribosomal RNA During Decoding of Messenger RNA," <i>Science</i> 277:1262-1267.
	25.	Markus, M. A. et al. (1998). "The Solution Structure of Robosomal Protein S4 Delta41 Reveals Two Subdomains and a Positively Charged Surface that May Interact with RNA," <i>EMBO J.</i> 17(16):4559-4571.

EXAMINER: 	DATE CONSIDERED: 4/23/02
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.	

Form PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION <i>(Use several sheets if necessary)</i>	Docket Number 256602000500	Application Number 09/904,779
	Applicant Venkatraman RAMAKRISHNAN et al.	
	Filing Date July 13, 2001	Group Art Unit 1744 163/
	Mailing Date January 30, 2002	

cm	26.	Moazed, D. and Noller, H. F. (1990). "Binding of tRNA to the Ribosomal A and P-sites Protects Two Distinct Sets of Nucleotides in 16 S rRNA," <i>J. Mol. Biol.</i> 211:135-145.
	27.	Mougel, M. et al. (1993). "Minimal 16S rRNA Binding Site and Role of Conserved Nucleotides in Escherichia Coli Ribosomal Protein S8 Recognition," <i>Eur. J. Biochem.</i> 215:787-792.
	28.	Mueller, F. and Brimacombe, R. (1997). "A New Model for the Three-Dimensional Folding of Escherichia Coli 16 S Ribosomal RNA. I. Fitting the RNA to a 3D Electron Microscopic Map at 20Å," <i>J. Mol Biol.</i> 271:524-544.
	29.	Nowotny, V. and Nierhaus, K. H. (1988). "Assembly of the 30S Subunit from Escherichia Coli Ribosomes Occurs via Two Assembly Domains which Are Initiated by S4 and S7," <i>Biochemistry</i> 27:7051-7055.
	30.	Prince, J. B. et al. (1982). "Covalent Crosslinking of tRNA 1Val to 16S RNA at the Ribosomal P-Site: Identification of Crosslinked Residues," <i>Proc. Natl. Acad. Sci. USA</i> 79:5450-5454.
	31.	Rich, A. and RajBhandary, U. L. (1976). "Transfer RNA: Molecular Structure, Sequence, and Properties," <i>In Annual Reviews of Biochemistry</i> . E.E. Snell et al., eds. Annual Reviews, Inc.: Palo Alto, CA., pp. 805-860.
	32.	Rose, S. J. III et al. (1983). "Binding of Yeast tRNAPhe Anticodon Arm to Escherichia Coli 30S Ribosomes," <i>J. Mol. Biol.</i> 167:103-117.
	33.	Tanaka, I. et al. (1998). "Matching the Crystallographic Structure of Ribosomal Protein S7 to a Three-Dimensional Model of the 16S Ribosomal RNA," <i>RNA</i> 4:542-550.
	34.	Terwilliger, T. C. and Berendzen, J. (1999). "Automated MAD and MIR Structure Determination," <i>Acta Cryst.</i> D55:849-861.
	35.	Tocilj, A. et al. (1999). "The Small Ribosomal Subunit from Thermus Thermophilus at 4.5 Resolution: pattern Fittings and the Identification of a Functional Site," <i>Proc. Natl. Acad. Sci. USA</i> 96:14252-14257.
	36.	Trakhanov, S. D. et al. (1987). "Crystallization of 70S Ribosomes and 30S Ribosomal Subunits from Thermus Thermophilus," <i>FEBS Letters</i> 220:319-322.
	37.	Urlaub, H. et al. (1997). "Identification and Sequence Analysis of Contact Sites Between Ribosomal Proteins and rRNA in Escherichia Coli 30 S Subunits by a New Approach Using Matrix-Assisted Laser Desorption/Ionization-Mass Spectrometry Combined with N-Terminal Microsequencing," <i>J. Biol. Chem.</i> 272:14547-14555.
	38.	van Acken, U. (1975). "Proteinchemical Studies on Ribosomal Proteins S4 and S12 from Ram (Ribosomal Ambiguity) Mutants of Escherichia Coli," <i>Mol Gen Genet.</i> 140:61-68.
	39.	von Ahsen, U. and Noller, H. F. (1995). "Identification of Bases in 16S rRNA Essential for tRNA Binding at the 30S Ribosomal P-Site," <i>Science</i> 267:234-237.
	40.	von Böhlen, K. et al. (1991). "Characterization and Preliminary Attempts for Derivatization of Crystals of Large Ribosomal Subunits from Haloarcula Marismortui Diffracting to 3 Å Resolution," <i>J. Mol. Biol.</i> 222:11-15.

EXAMINER: 	DATE CONSIDERED: 4/29/03
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.	